

What I claim is:

1 1. A filament composition having a surface for reducing microbial contamination  
2 comprising a filament material and lactoferrin.

1 2. The filament composition in accordance with claim 1 wherein at least some of  
2 the lactoferrin is immobilized on a biologically active substrate via the N-terminus  
3 region of the lactoferrin.

1 3. The filament composition in accordance with claim 2 wherein the ratio of  
2 immobilized lactoferrin to free lactoferrin is from about 1:1 to about 1:500.

1 4. The filament composition in accordance with claim 2 wherein the ratio of  
2 immobilized lactoferrin to free lactoferrin is from about 1:4 to about 1:100.

1 5. The filament composition in accordance with claim 2 wherein the ratio of  
2 immobilized lactoferrin to free lactoferrin is about 1:20.

6. The filament composition in accordance with claim 2 wherein the biologically  
active substrate is a protein, a polysaccharide, a nucleic acid, a nucleotide or a lipid.

1 7. The filament composition in accordance with claim 2 wherein the biologically  
2 active substrate is galactose-rich polysaccharide, collagen, gelatin, fibronectin, casein,  
3 mucin, heparan-sulfate, carrageenan, pectin, deoxyribonucleic acid, adenosine  
4 triphosphate or a triglyceride.

1 8. The filament composition in accordance with claim 2 wherein the concentration  
2 of the lactoferrin on the surface of the filament composition for reducing microbial  
3 contamination is from about 0.0001 to about 10 mg/square inch.

1 9. The filament composition in accordance with claim 2 wherein the concentration  
2 of the lactoferrin on the surface of the filament composition for reducing microbial  
3 contamination is from about 0.01 to about 1 mg/sq. inch.

1 10. The filament composition in accordance with claim 2 wherein the filament  
2 material is a monofilament or a multifilament material.

1 11. The filament composition in accordance with claim 2 wherein the surface of the  
2 filament composition for reducing microbial contamination has a coating containing  
3 the lactoferrin.

1 12. The filament composition in accordance with claim 2 wherein the filament  
2 material is covalently bonded to the lactoferrin.

1 13. A dental floss composition having a surface for reducing microbial contamination  
2 comprising a dental floss material and lactoferrin.

1 14. The dental floss composition in accordance with claim 13 wherein at least some  
2 of the lactoferrin is immobilized on a biologically active substrate via the N-terminus  
3 region of the lactoferrin.

1 15 The dental floss composition in accordance with claim 14 wherein the ratio of  
2 immobilized lactoferrin to free lactoferrin is from about 1:4 to about 1:100.

1 16. The filament composition in accordance with claim 14 wherein the biologically  
2 active substrate is a protein, a polysaccharide, a nucleic acid, a nucleotide or a lipid.

1 17. The filament composition in accordance with claim 14 wherein the biologically  
2 active substrate is galactose-rich polysaccharide, collagen, gelatin, fibronectin, casein,  
3 mucin, heparan-sulfate, carrageenan, pectin, deoxyribonucleic acid, adenosine  
4 triphosphate or a triglyceride.

1 18. The dental floss composition in accordance with claim 14 wherein the  
2 concentration of the lactoferrin on the surface of the dental floss composition for  
3 reducing microbial contamination is from about 0.0001 to about 10 mg/square inch.

1 19. The dental floss composition in accordance with claim 14 wherein the  
2 concentration of the lactoferrin on the surface of the dental floss composition for  
3 reducing microbial contamination is from about 0.01 to about 1 mg/sq. inch.

1 20. The dental floss dental composition in accordance with claim 14 wherein the  
2 dental floss material is a monofilament material, a multifilament material or a tape.

1 21. The dental floss composition in accordance with claim 14 wherein the dental  
2 floss material is a multifilament material.

1 22. The dental floss composition in accordance with claim 14 wherein the surface of  
2 the dental floss composition for reducing microbial contamination has a coating  
3 containing the lactoferrin.

1 23. The dental floss composition in accordance with claim 22 wherein the coating  
2 is a pH sensitive wax or polymeric coating.

1 24. The dental floss composition of claim 14 wherein the dental floss material has  
2 a layer of a hydrophilic polymer treated with the lactoferrin and a permeation  
3 enhancer.

1 25. The dental floss composition in accordance with claim 14 wherein the dental  
2 floss material is covalently bonded to the lactoferrin.

1 26. A suture composition having a surface for reducing microbial contamination  
2 comprising a suture material and lactoferrin.

1 27. The suture composition in accordance with claim 26 wherein at least some of the  
2 lactoferrin is immobilized on a biologically active substrate via the N-terminus region  
3 of the lactoferrin.

1 28. The suture composition in accordance with claim 27 wherein the ratio of  
2 immobilized Lactoferrin to free Lactoferrin is from about 1:4 to about 1:100.

29. The suture composition in accordance with claim 27 wherein the biologically  
active substrate is a protein, a polysaccharide, a nucleic acid, a nucleotide or a lipid.

1 30. The suture composition in accordance with claim 27 wherein the biologically  
2 active substrate is galactose-rich polysaccharide, collagen, gelatin, fibronectin, casein,  
3 mucin, heparan-sulfate, carrageenan, pectin, deoxyribonucleic acid, adenosine  
4 triphosphate or a triglyceride.

1 31. The suture composition in accordance with claim 27 wherein the concentration  
2 of the Lactoferrin on the surface of the suture composition for reducing microbial  
3 contamination is from about 0.0001 to about 10 mg/square inch.

1 32. The suture composition in accordance with claim 27 wherein the concentration  
2 of the lactoferrin on the surface of the suture composition for reducing microbial  
3 contamination is from about 0.01 to about 1 mg/sq. inch.

1 33. The suture composition in accordance with claim 27 wherein the suture material  
2 is a monofilament material or a multifilament material.

1 34. The suture composition in accordance with claim 27 wherein the suture material  
2 is a monofilament material.

1 35. The suture composition in accordance with claim 27 wherein the suture material  
2 is a multifilament material.

1 36. The suture composition in accordance with claim 27 wherein the surface of the  
2 suture composition for reducing microbial contamination has a coating containing the  
3 lactoferrin.

1 37. The suture composition in accordance with claim 27 wherein the dental floss  
2 material is covalently bonded to the lactoferrin.